



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Leitz *et al.*  
SERIAL NO.: 10/646,353 GROUP NO.: 2811  
FILING DATE: August 22, 2003 EXAMINER: Not Yet Assigned  
TITLE: Semiconductor Heterostructures Having Reduced Dislocation Pile-Ups  
and Related Methods

**CERTIFICATE OF FIRST CLASS MAILING UNDER 37 C.F.R. 1.8**

I hereby certify that this correspondence, and any document(s) referred to as enclosed herein, is/are being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 23 day of December, 2003.

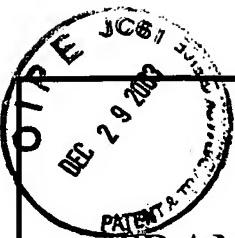
  
\_\_\_\_\_  
Emily Walsh

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith are:

1. Transmittal Form (1 pg.);
2. Information Disclosure Statement (2 pgs.);
3. Form PTO-1449 (17 pgs.), with copies of cited references B1-B48 and C1-C131;
4. Return Receipt Postcard; and this
5. Certificate of First Class Mailing (1 pg.).



# TRANSMITTAL FORM

|                           |                  |
|---------------------------|------------------|
| Application Serial Number | 10/646,353       |
| Filing Date               | August 22, 2003  |
| First Named Inventor      | Leitz            |
| Group Art Unit            | 2811             |
| Examiner Name             | Not Yet Assigned |
| Attorney Docket No.       | ASC-058B         |
| Patent No.                | Not Applicable   |
| Issue Date                | Not Applicable   |

**ENCLOSURES (check all that apply)**

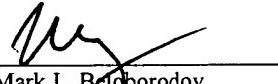
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|---|--|---|
| <input type="checkbox"/> Fee Transmittal Form <ul style="list-style-type: none"> <li><input type="checkbox"/> Check Attached</li> <li><input type="checkbox"/> Copy of Fee Transmittal Form</li> </ul><br><input type="checkbox"/> Amendment/Response <ul style="list-style-type: none"> <li><input type="checkbox"/> Preliminary</li> <li><input type="checkbox"/> After Final</li> <li><input type="checkbox"/> Affidavits/declaration(s)</li> <li><input type="checkbox"/> Letter to Official Draftsperson including Drawings [Total Sheets _____]</li> </ul><br><input type="checkbox"/> Petition for Extension of Time | <input type="checkbox"/> Copy of Notice to File Missing Parts of Application<br><br><input type="checkbox"/> Formal Drawing(s)<br><br><input type="checkbox"/> Request For Continued Examination (RCE) Transmittal<br><br><input type="checkbox"/> Power of Attorney (Revocation of Prior Powers)<br><br><input type="checkbox"/> Terminal Disclaimer<br><br><input type="checkbox"/> Executed Declaration and Power of Attorney for Utility or Design Patent Application<br><br><input type="checkbox"/> Small Entity Statement<br><br><input type="checkbox"/> CD(s) for large table or computer program<br><br><input type="checkbox"/> Amendment After Allowance<br><br><input type="checkbox"/> Request for Certificate of Correction <ul style="list-style-type: none"> <li><input type="checkbox"/> Certificate of Correction (in duplicate)</li> </ul> | <input type="checkbox"/> Notice of Appeal to Board of Patent Appeals and Interferences<br><br><input type="checkbox"/> Appeal Brief (in triplicate)<br><br><input type="checkbox"/> Status Inquiry<br><br><input checked="" type="checkbox"/> Return Receipt Postcard<br><br><input checked="" type="checkbox"/> Certificate of First Class Mailing under 37 C.F.R. 1.8<br><br><input type="checkbox"/> Certificate of Facsimile Transmission under 37 C.F.R. 1.8<br><br><input type="checkbox"/> Additional Enclosure(s) (please identify below) |
| <input checked="" type="checkbox"/> Information Disclosure Statement <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Form PTO-1449</li> <li><input checked="" type="checkbox"/> Copies of IDS Citations (B1-B48 and C1-C131)</li> </ul><br><input type="checkbox"/> Certified Copy of Priority Document(s)   |  |   |
| <input type="checkbox"/> Sequence Listing submission <ul style="list-style-type: none"> <li><input type="checkbox"/> Paper Copy/CD</li> <li><input type="checkbox"/> Computer Readable Copy</li> <li><input type="checkbox"/> Statement verifying identity of above</li> </ul>  |  |   |

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Respectfully submitted,

  
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**PATENT**  
Attorney Docket No. ASC-058B

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANTS: Leitz *et al.*

SERIAL NUMBER: 10/646,353 ART UNIT: 2811

FILING DATE: August 22, 2003 EXAMINER: Not Yet Assigned

TITLE: Semiconductor Heterostructures Having Reduced Dislocation  
Pile-Ups and Related Methods

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT**

In accordance with the provisions of 37 C.F.R. 1.97 and 1.98, Applicants hereby make of record the patents and publications listed on the accompanying Form PTO-1449, and other information contained herein, for consideration by the Examiner in connection with the examination of the above-identified patent application. In accordance with the U.S. Patent Office's partial waiver of the requirement under 37 C.F.R. 1.98 (a)(2)(i), only copies of the foreign patent documents and non-patent publications are enclosed.

It is respectfully requested that each of the patents and publications listed on the attached Form PTO-1449, and other information contained herein, be made of record in this application.

In addition, Applicants wish to inform the Examiner about the following commonly-owned, co-pending patent applications, including all cited references and Office actions issued therein:

| <b>U.S. Serial Number</b> | <b>Filing Date</b> | <b>Inventor Name</b> |
|---------------------------|--------------------|----------------------|
| 09/611,024                | July 6, 2000       | Fitzgerald           |
| 10/268,025                | October 9, 2002    | Fitzgerald           |
| 10/268,425                | October 10, 2002   | Vineis <i>et al.</i> |

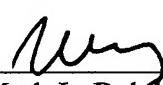
In accordance with the provisions of 37 C.F.R. 1.97, this statement is being filed before the mailing of the first Office action on the merits. Applicants believe no fees are due for this paper to be entered and considered, but the Commissioner is hereby authorized to charge Deposit Account No. 20-0531 for any required fees that may be due.

Respectfully submitted,

Date: December 23, 2003  
Reg. No. 50,773

Tel. No.: (617) 248-7453  
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2725546

  
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FORM PTO - 1449

## INFORMATION DISCLOSURE STATEMENT

ATTORNEY DOCKET NO.: ASC-058B

APPLICANT(S): Leitz *et al.*

SERIAL NO.: 10/646,353

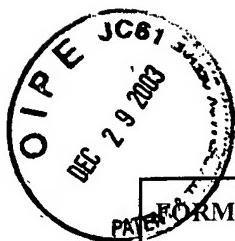
FILING DATE: August 22, 2003 GROUP: 2811

## U.S. PATENT DOCUMENTS

| EXAM.<br>INIT. |     | DOCUMENT<br>NUMBER | DATE       | NAME                       | CLASS | SUB<br>CLASS | FILING DATE IF<br>APPROPRIATE |
|----------------|-----|--------------------|------------|----------------------------|-------|--------------|-------------------------------|
|                | A1  | 2001/0003364       | 06/14/2001 | Sugawara <i>et al.</i>     |       |              |                               |
|                | A2  | 2001/0014570       | 08/16/2001 | Wenski <i>et al.</i>       |       |              |                               |
|                | A3  | 2002/0043660       | 04/18/2002 | Yamazaki <i>et al.</i>     |       |              |                               |
|                | A4  | 2002/0052084       | 05/02/2002 | Fitzgerald                 |       |              |                               |
|                | A5  | 2002/0084000       | 07/04/2002 | Fitzgerald                 |       |              |                               |
|                | A6  | 2002/0096717       | 07/25/2002 | Chu <i>et al.</i>          |       |              |                               |
|                | A7  | 2002/0100942       | 08/01/2002 | Fitzgerald <i>et al.</i>   |       |              |                               |
|                | A8  | 2002/0123167       | 09/05/2002 | Fitzgerald                 |       |              |                               |
|                | A9  | 2002/0123183       | 09/05/2002 | Fitzgerald                 |       |              |                               |
|                | A10 | 2002/0123197       | 09/05/2002 | Fitzgerald <i>et al.</i>   |       |              |                               |
|                | A11 | 2002/0125471       | 09/12/2002 | Fitzgerald <i>et al.</i>   |       |              |                               |
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|                | A13 | 2002/0168864       | 11/14/2002 | Cheng <i>et al.</i>        |       |              |                               |
|                | A14 | 2002/0185686       | 12/12/2002 | Christiansen <i>et al.</i> |       |              |                               |
|                | A15 | 2003/0003679       | 01/02/2003 | Doyle <i>et al.</i>        |       |              |                               |
|                | A16 | 2003/0013323       | 01/16/2003 | Hammond <i>et al.</i>      |       |              |                               |
|                | A17 | 2003/0025131       | 02/06/2003 | Lee <i>et al.</i>          |       |              |                               |
|                | A18 | 2003/0034529       | 02/20/2003 | Fitzgerald <i>et al.</i>   |       |              |                               |
|                | A19 | 2003/0041798       | 03/06/2003 | Wenski <i>et al.</i>       |       |              |                               |
|                | A20 | 2003/0057439       | 03/27/2003 | Fitzgerald                 |       |              |                               |
|                | A21 | 2003/0077867       | 04/24/2003 | Fitzgerald                 |       |              |                               |
|                | A22 | 2003/0102498       | 06/05/2003 | Braithwaite <i>et al.</i>  |       |              |                               |
|                | A23 | 2003/0127646       | 07/10/2003 | Christiansen <i>et al.</i> |       |              |                               |
|                | A24 | 2003/0186073       | 10/02/2003 | Fitzgerald                 |       |              | 03/18/2003                    |
|                | A25 | 4,010,045          | 03/01/1977 | Ruehrwein                  |       |              |                               |
| EXAMINER       |     |                    |            | DATE CONSIDERED            |       |              |                               |



| <b>FORM PTO - 1449</b><br><b>INFORMATION DISCLOSURE STATEMENT</b> |     |                            |             | <b>ATTORNEY DOCKET NO.: ASC-058B</b><br><b>APPLICANT(S): Leitz et al.</b><br><b>SERIAL NO.: 10/646,353</b><br><b>FILING DATE: August 22, 2003 GROUP: 2811</b> |              |                      |                                       |
|---|-----|----------------------------|-------------|---|--------------|----------------------|---------------------------------------|
| <b>U.S. PATENT DOCUMENTS</b>                                      |     |                            |             |   |              |                      |                                       |
| <b>EXAM.<br/>INIT.</b>  |     | <b>DOCUMENT<br/>NUMBER</b> | <b>DATE</b> | <b>NAME</b>   | <b>CLASS</b> | <b>SUB<br/>CLASS</b> | <b>FILING DATE IF<br/>APPROPRIATE</b> |
|   | A26 | 4,710,788                  | 12/01/1987  | Dambkes et al.  |              |                      |                                       |
|   | A27 | 4,900,372                  | 12/13/1990  | Lee et al.  |              |                      |                                       |
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|   | A29 | 4,990,979                  | 02/05/1991  | Otto  |              |                      |                                       |
|   | A30 | 4,997,776                  | 03/05/1991  | Harame et al.   |              |                      |                                       |
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|   | A32 | 5,091,767                  | 02/25/1992  | Bean et al.   |              |                      |                                       |
|   | A33 | 5,097,630                  | 03/24/1992  | Maeda et al.  |              |                      |                                       |
|   | A34 | 5,155,571                  | 10/13/1992  | Wang et al.   |              |                      |                                       |
|   | A35 | 5,159,413                  | 10/27/1992  | Calviello et al.  |              |                      |                                       |
|   | A36 | 5,166,084                  | 11/24/1992  | Pfiester  |              |                      |                                       |
|   | A37 | 5,177,583                  | 01/05/1993  | Endo et al.   |              |                      |                                       |
|   | A38 | 5,202,284                  | 04/13/1993  | Kamins et al.   |              |                      |                                       |
|   | A39 | 5,207,864                  | 05/04/1993  | Bhat et al.   |              |                      |                                       |
|   | A40 | 5,208,182                  | 05/04/1993  | Narayan et al.  |              |                      |                                       |
|   | A41 | 5,210,052                  | 05/11/1993  | Takasaki  |              |                      |                                       |
|   | A42 | 5,212,110                  | 05/18/1993  | Pfiester et al.   |              |                      |                                       |
|   | A43 | 5,221,413                  | 06/22/1993  | Brasen et al.   |              |                      |                                       |
|   | A44 | 5,241,197                  | 08/31/1993  | Murakami et al.   |              |                      |                                       |
|   | A45 | 5,250,445                  | 10/05/1993  | Bean et al.   |              |                      |                                       |
|   | A46 | 5,252,173                  | 10/12/1993  | Inoue   |              |                      |                                       |
|   | A47 | 5,279,687                  | 01/18/1994  | Tuppen et al.   |              |                      |                                       |
|   | A48 | 5,285,086                  | 02/08/1994  | Fitzgerald  |              |                      | -                                     |
|   | A49 | 5,291,439                  | 03/01/1994  | Kauffmann et al.  |              |                      |                                       |
|   | A50 | 5,298,452                  | 03/29/1994  | Meyerson  |              |                      |                                       |
|   | A51 | 5,308,444                  | 05/03/1994  | Fitzgerald et al.   |              |                      |                                       |
| <b>EXAMINER</b>   |     |                            |             | <b>DATE CONSIDERED</b>  |              |                      |                                       |



PATENT FORM PTO - 1449

## INFORMATION DISCLOSURE STATEMENT

ATTORNEY DOCKET NO.: ASC-058B

APPLICANT(S): Leitz *et al.*

SERIAL NO.: 10/646,353

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## U.S. PATENT DOCUMENTS

| EXAM.<br>INIT. |     | DOCUMENT<br>NUMBER | DATE       | NAME                               | CLASS | SUB<br>CLASS | FILING DATE IF<br>APPROPRIATE |
|----------------|-----|--------------------|------------|------------------------------------|-------|--------------|-------------------------------|
|                | A52 | 5,310,451          | 05/10/1994 | Tejwani <i>et al.</i>              |       |              |                               |
|                | A53 | 5,316,958          | 05/31/1994 | Meyerson                           |       |              |                               |
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|                | A55 | 5,374,564          | 12/20/1994 | Bruel                              |       |              |                               |
|                | A56 | 5,399,522          | 03/21/1995 | Ohori                              |       |              |                               |
|                | A57 | 5,413,679          | 05/09/1995 | Godbey                             |       |              |                               |
|                | A58 | 5,424,243          | 06/13/1995 | Takasaki                           |       |              |                               |
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|                | A60 | 5,426,069          | 06/20/1995 | Selvakumar <i>et al.</i>           |       |              |                               |
|                | A61 | 5,426,316          | 06/20/1995 | Mohammad                           |       |              |                               |
|                | A62 | 5,442,205          | 08/15/1995 | Brasen <i>et al.</i>               |       |              |                               |
|                | A63 | 5,461,243          | 10/24/1995 | Ek <i>et al.</i>                   |       |              |                               |
|                | A64 | 5,461,250          | 10/24/1995 | Burghartz <i>et al.</i>            |       |              |                               |
|                | A65 | 5,462,883          | 10/31/1995 | Dennard <i>et al.</i>              |       |              |                               |
|                | A66 | 5,476,813          | 12/19/1995 | Naruse                             |       |              |                               |
|                | A67 | 5,479,033          | 12/26/1995 | Baca <i>et al.</i>                 |       |              |                               |
|                | A68 | 5,484,664          | 01/16/1996 | Kitahara <i>et al.</i>             |       |              |                               |
|                | A69 | 5,523,243          | 06/04/1996 | Mohammad                           |       |              |                               |
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|                | A71 | 5,534,713          | 07/09/1996 | Ismail <i>et al.</i>               |       |              |                               |
|                | A72 | 5,536,361          | 07/16/1996 | Kondo <i>et al.</i>                |       |              |                               |
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|                | A74 | 5,596,527          | 01/21/1997 | Tomioka <i>et al.</i>              |       |              | -                             |
|                | A75 | 5,617,351          | 04/01/1997 | Bertin <i>et al.</i>               |       |              |                               |
|                | A76 | 5,630,905          | 05/20/1997 | Lynch <i>et al.</i>                |       |              |                               |
|                | A77 | 5,633,516          | 05/27/1997 | Mishima <i>et al.</i>              |       |              |                               |
|                | A78 | 5,659,187          | 08/19/1997 | Legoues <i>et al.</i>              |       |              |                               |
| EXAMINER       |     |                    |            | DATE CONSIDERED                    |       |              |                               |



| FORM PTO - 1449<br><br>INFORMATION DISCLOSURE STATEMENT |      |                    |            | ATTORNEY DOCKET NO.: ASC-058B<br><br>APPLICANT(S): Leitz <i>et al.</i><br><br>SERIAL NO.: 10/646,353<br><br>FILING DATE: August 22, 2003 GROUP: 2811 |       |              |                               |
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| EXAM.<br>INIT.  |      | DOCUMENT<br>NUMBER | DATE       | NAME   | CLASS | SUB<br>CLASS | FILING DATE IF<br>APPROPRIATE |
|   | A79  | 5,683,934          | 11/04/1997 | Candelaria   |       |              |                               |
|   | A80  | 5,698,869          | 12/16/1997 | Yoshimi <i>et al.</i>  |       |              |                               |
|   | A81  | 5,714,777          | 02/03/1998 | Ismail <i>et al.</i>   |       |              |                               |
|   | A82  | 5,728,623          | 03/17/1998 | Mori   |       |              |                               |
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|   | A84  | 5,759,898          | 06/02/1998 | Ek <i>et al.</i>   |       |              |                               |
|   | A85  | 5,777,347          | 07/07/1998 | Bartelink  |       |              |                               |
|   | A86  | 5,786,612          | 07/28/1998 | Otani <i>et al.</i>  |       |              |                               |
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|   | A88  | 5,792,679          | 08/11/1998 | Nakato   |       |              |                               |
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|   | A91  | 5,810,924          | 09/22/1998 | Legoues <i>et al.</i>  |       |              |                               |
|   | A92  | 5,828,114          | 10/27/1998 | Kim <i>et al.</i>  |       |              |                               |
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|   | A94  | 5,859,864          | 01/12/1999 | Jewell   |       |              |                               |
|   | A95  | 5,877,070          | 03/02/1999 | Goesele <i>et al.</i>  |       |              |                               |
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|   | A97  | 5,906,708          | 05/25/1999 | Robinson <i>et al.</i>   |       |              |                               |
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|   | A99  | 5,912,479          | 06/15/1999 | Mori <i>et al.</i>   |       |              |                               |
|   | A100 | 5,943,560          | 08/24/1999 | Chang <i>et al.</i>  |       |              |                               |
|   | A101 | 5,963,817          | 10/05/1999 | Chu <i>et al.</i>  |       |              |                               |
|   | A102 | 5,966,622          | 10/12/1999 | Levine <i>et al.</i>   |       |              |                               |
|   | A103 | 5,998,807          | 12/07/1999 | Lustig <i>et al.</i>   |       |              |                               |
|   | A104 | 6,010,937          | 01/04/2000 | Karam <i>et al.</i>  |       |              |                               |
|   | A105 | 6,013,134          | 01/11/2000 | Chu <i>et al.</i>  |       |              |                               |
|   | A106 | 6,030,884          | 02/29/2000 | Mori   |       |              |                               |
|   | A107 | 6,033,974          | 03/07/2000 | Henley <i>et al.</i>   |       |              |                               |
| EXAMINER  |      |                    |            | DATE CONSIDERED  |       |              |                               |



| EXAM PTO - 1449<br><br>INFORMATION DISCLOSURE STATEMENT |      |                    |            | ATTORNEY DOCKET NO.: ASC-058B<br><br>APPLICANT(S): Leitz <i>et al.</i><br><br>SERIAL NO.: 10/646,353<br><br>FILING DATE: August 22, 2003 GROUP: 2811 |       |              |                               |
|---|------|--------------------|------------|--|-------|--------------|-------------------------------|
| U.S. PATENT DOCUMENTS                                   |      |                    |            |  |       |              |                               |
| EXAM.<br>INIT.  |      | DOCUMENT<br>NUMBER | DATE       | NAME   | CLASS | SUB<br>CLASS | FILING DATE IF<br>APPROPRIATE |
|   | A108 | 6,033,995          | 03/07/2000 | Muller   |       |              |                               |
|   | A109 | 6,039,803          | 03/21/2000 | Fitzgerald <i>et al.</i>   |       |              |                               |
|   | A110 | 6,058,044          | 05/02/2000 | Sugiura <i>et al.</i>  |       |              |                               |
|   | A111 | 6,059,895          | 05/09/2000 | Chu <i>et al.</i>  |       |              |                               |
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|   | A113 | 6,096,590          | 08/01/2000 | Chan <i>et al.</i>   |       |              |                               |
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|   | A115 | 6,107,653          | 08/22/2000 | Fitzgerald   |       |              |                               |
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|   | A119 | 6,130,453          | 10/10/2000 | Mei <i>et al.</i>  |       |              |                               |
|   | A120 | 6,133,799          | 10/17/2000 | Favors <i>et al.</i>   |       |              |                               |
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|   | A122 | 6,143,636          | 11/07/2000 | Forbes <i>et al.</i>   |       |              |                               |
|   | A123 | 6,153,495          | 11/28/2000 | Kub <i>et al.</i>  |       |              |                               |
|   | A124 | 6,154,475          | 11/28/2000 | Soref <i>et al.</i>  |       |              |                               |
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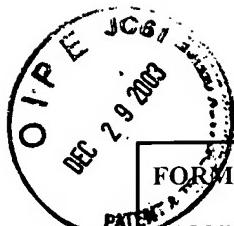
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